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BASF CORPORATION			SCHLIENTZ, LEAH H	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/596,007	<b>Applicant(s)</b> POPPE ET AL.	
	<b>Examiner</b> Leah Schlientz	<b>Art Unit</b> 1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-32 and 35-39 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-32 and 35-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/25/06 and 10/29/10</u> .                                    | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group I in the reply filed on 10/29/2010 is acknowledged. The traversal is on the ground(s) that the technical feature common to the curable composition of claim 1 and the polymeric premix of claim 12 is not merely deagglomerated barium sulfate with crystallization inhibitor and dispersant alone, and that claims 1 and 12 have been amended to recite that the curable composition comprises a curable binder that is curable thermally and/or with actinic radiation. This is found to be persuasive and the *restriction requirement is hereby withdrawn* in view of claim amendment. The election of the following species are acknowledged: (i) terminally-substituted polyetherpolycarboxylate (Melpers 0030) as dispersant and (ii) citric acid as crystallization inhibitor.

### ***Status of Claims***

Claims 1, 3-32 and 35-39 are pending, of which claim 6 is withdrawn from consideration as being drawn to non-elected species. Claims 1, 3-5, 7-32 and 35-39 are readable upon the elected species and are examined herein on the merits for patentability.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

Art Unit: 1618

double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3-5, 7-32 and 35-39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 7,811,668. Although the conflicting claims are not identical, they are not patentably distinct from each other. The instant claims are drawn to a curable binder that is curable thermally and/or with actinic radiation, deagglomerated barium containing at least one dispersant and at least one crystallization inhibitor and having a primary particle size of less than 0.5 micron, wherein the crystallization inhibitor is selected from the group consisting of compounds of general formula V. The claims of the '668 patent are drawn to a cured epoxy resin comprising deagglomerated barium sulphate dispersed within said cured epoxy resin, said barium sulphate comprising primary and secondary barium sulphate particles, a crystallization inhibitor and a dispersant, wherein the primary particles have an average primary particle size of less than 0.5 micron, etc. Claim 15 of the '668 patent is drawn to a precursor of a cured epoxy resin. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the curable composition of the instant claims to arrive at the cured composition of the

Art Unit: 1618

'668 patent, which barium sulfate, crystallization inhibitor and dispersant components and overlapping particle size. It is noted that dependent claims of the instant application include curable epoxy binder. It is noted that dependent claims of both the instant application and the '668 patent include citric acid as crystallization inhibitor. Accordingly, the claims are overlapping in scope and are obvious variants of one another.

Claims 1, 3-5, 7-32 and 35-39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 25, 27 and 28 of U.S. Patent No. 7,846,409. Although the conflicting claims are not identical, they are not patentably distinct from each other. The instant claims are drawn to a curable binder that is curable thermally and/or with actinic radiation, deagglomerated barium containing at least one dispersant and at least one crystallization inhibitor and having a primary particle size of less than 0.5 micron, wherein the crystallization inhibitor is selected from the group consisting of compounds of general formula V. The claims of the '409 patent are drawn to a plastics premix or a curable composition comprising a curable constituent and deagglomerated barium sulphate comprising primary and secondary barium sulphate particles, wherein the primary particles comprise a crystallization inhibitor and have an average particle size of less than one micron, wherein the a crystallization inhibitor and the dispersant are different compounds, and wherein the dispersant comprises at least one anionic group and is substituted by at least one polyether group. It would have been obvious to one of ordinary skill in the art

Art Unit: 1618

at the time of the invention to provide a dispersant meeting the structural requirements of the claims of the '409 patent from dependent claims of the instant application. It is noted that dependent claims of both the instant application and the '668 patent include carboxylic acid as crystallization inhibitor. Accordingly, the claims are overlapping in scope and are obvious variants of one another.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is drawn to the curable composition as claimed in claim 2. However, claim 2 is a cancelled claim. Accordingly, the metes and bounds of the claim have not been clearly set forth and the scope of the claims cannot be distinctly ascertained. Appropriate correction is requested.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following reference, drawn to non-elected species with regard to dispersant, was found during the search for the elected species. It should not be interpreted that a comprehensive search was performed for all non-elected species.

Claims 1, 3-5, 7, 8, 10-16, 31 and 35-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Turrell *et al.* ("A USAXS Study of Dispersion of Barium Sulfate Particles in Polymethylmethacrylate Bone Cement," [www.aps.anl.gov/apsar2001/BELLARA1.pdf](http://www.aps.anl.gov/apsar2001/BELLARA1.pdf), 2001).

Turrell discloses that polymethylmethacrylate (PMMA) bone cement is widely used for fixation of total joint replacement prostheses. The cement is prepared by mixing PMMA liquid monomer into a powder component. Most cements contain approximately 10 wt% radiopacifier particles, usually barium sulfate or zirconium oxide, so that orthopaedic surgeons can monitor fracture in implanted cements by using x-ray radiographs. Improved dispersion of these hard radiopacifier particles would prevent the formation of agglomerates and thereby improve the fracture toughness of bone cement. In this study, ultrasmall-angle x-ray scattering (USAXS) was used to characterize the surface area-to-volume ratio (specific surface area) of dispersed radiopacifier particles as well as voids within the PMMA matrix (page 1, left column). 100-nm (nanosize) powder were mixed into separate batches of CMW1 in the standard quantity of 10 wt%. The nano-size barium sulfate powder contained 2 wt% sodium citrate as a coating to prevent particle agglomeration (page 1, right column).

Accordingly, Turrell teaches citrate coated nanosize barium sulfate within PMMA monomer containing powder. It is noted that the instant specification describes that



Art Unit: 1618

(meth)acrylic acid polymers may be used as curable binder, and that citric acid is preferable as crystallization inhibitor (paragraph 0019). It is noted that the instant specification describes that crystallization inhibitor and dispersant may be identical (paragraph 0029).

Regarding claims 10, 11 and 13-15, the limitation wherein "the deagglomerated barium sulfate is used in the form of one of...", it appears to be a product-by-process type limitation. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In the instant case, the form of barium sulfate used in preparation of the curable composition is not given patentable weight. See MPEP 2113.

Regarding claim 16, the intended use of barium sulfate as catalyst has not been given patentable weight to distinguish over Turrell because the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Art Unit: 1618

Regarding claim 31, citric acid or PMMA are within the scope of a modifier.

Regarding claims 35, bone cement is considered to be within the scope of a sealant.

Regarding claim 36, barium sulfate shields from high energy radiation.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.s
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-5, 7, 8, 10-32, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bock *et al.* (US 6,020,419) in view of Hardinghaus *et al.* (WO 01/92157, whereby US 7,001,582 is relied upon as equivalent).

Bock teaches that preparation of substantially nanoscale particles in an organic, inorganic or organic/inorganic matrix is of interest in many applications. Specific combinations of properties in coatings, such as transparency and wear resistance, may

Art Unit: 1618

be obtained by using nanoparticles. It would be desirable, especially for high-grade transparent lacquer applications, to provide lacquer binders with nanoparticles such that, at constant transparency and gloss, an improvement in scratch resistance is obtained. Previously, it has not been known how to produce agglomerate-free powders or powder preparations at reasonable cost from the available nanoscale powders containing agglomerates. Various alternative production processes have been developed in which products predominantly containing agglomerate-free nanoscale particles or composites may be produced by means of a controlled growth process starting from discrete low molecular weight starting materials or such materials in, for example, sol form (column 1-2). It is an object of the invention to provide a simple process for the production of transparent coating compositions, which contain nanoscale particles in order to improve properties, such as scratch resistance (column 2, lines 45+). The invention relates to transparent coating compositions containing a binder and 0.5 to 25 wt.%, based on resin solids, of a material consisting of nanoscale primary particles obtained by jet dispersion of the nanoscale particles in the coating composition. The transparent coating compositions containing solid nanoparticles according to the invention may be used as attractive starting materials for improving properties in areas where they could not previously be used due to the elevated agglomerate content, such as clear lacquer applications. It was also surprising that the use of these coating compositions modified with nanoparticles resulted in improved scratch resistance, especially in clear lacquer applications, and simultaneously brought about improved chemical resistance (column 3, lines 15-25). Nanoscale materials

Art Unit: 1618

include  $BaSO_4$ ,  $TiO_2$ , which are in the form of solid particles having a nanoscale primary structure (column 4, lines 1-7). Suitable binders include *polymers and copolymers of (meth)acrylic acids* and the esters thereof, which may optionally contain other functional groups, with other olefinically unsaturated compounds, such as styrene. Other examples include polyether, polyester, polycarbonate, polyurethane and *epoxy resins as well mixtures of these polymers* (see column 4-5). Various curing agents are also disclosed. Suitable low molecular weight additives, which may be used to stabilize the deagglomerated nanoscale particles against reagglomeration, include compounds that are suitable for stabilizing nanoscale particles which are produced in a different manner, for example, using one of the above-stated methods. Examples include compounds having hydrolyzable silane groups, such as alkoxy- or chlorosilanes. Certain amphiphilic compounds may also be used. The solvents and additives suitable for the production of the dispersing medium may be blended together as desired (column 7, lines 1-15).

Bock does not specifically recite that barium sulfate nanoparticles include a crystallization inhibitor/dispersant of formula V.

Hardinghaus teaches finely dispersed, micronized barium sulfate which may be used as an additive for cosmetics, fillers for pigments, adhesives or rubber articles. At least 90% of the particles have a diameter of less than 0.1 micron. It is a further aspect of the invention to provide particulate, coated  $BaSO_4$  wherein at least 95% of the particles have a primary diameter of less than or equal to 0.1 micron (column 1, lines 25-55). A wetting or dispersing agent may be added to the barium sulfate. The wetting

Art Unit: 1618

and/or dispersing agent leads to the formation of small crystals which agglomerate as little as possible. The wetting or dispersing agent influences the surface properties of the barium sulfate, i.e. the product obtained is a coated product. Dispersing agents are selected so that it is compatible in regard to the intended use, including hydrophilic or hydrophobic dispersing agents. A tailored adjustment to the desired technical application is possible through coated particles having adjustable surface properties. Highly useful dispersing agents include (short chain) polyacrylates, typically in the form of the sodium salt, polyethers such as polyglycol ether, ether sulfonates such as lauryl ether sulfonate, esters of phthalic acid, esters of polyglycerol, amines such as triethanolamine, and esters of fatty acids such as stearic acid (column 3, lines 4-45). The coated barium sulfate, which is redispersible into particles having a particle size below 100 nm, preferably below 50 nm, is particularly suitable for use as a filler for adhesives, for rubber articles, *for pigments (such as coating varnish, base varnish, or primer)*, etc. The coated barium sulfate is inert, transparent, and provides rheological properties advantageous to the application matrix. It is redispersible in solvents and/or base material for adhesives, pigments, etc. Through selection of suitable dispersing agent, it is also compatible with the material used (column 3, lines 52+). See also Example 3, drawn to polyacrylate coated barium sulfate having average particle diameter of 30 nm, which is particularly suitable for use as an additive for pigments, rubber articles and adhesives because the dispersing agent acts as a binding mediator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the coated (e.g. such as coated with sodium polyacrylate as a

Art Unit: 1618

dispersing agent) barium sulfate nanoparticles taught by Hardinghaus as the nanoparticles used in the curable coating binders (including epoxide) taught by Bock. One would have been motivated to do so because both Hardinghaus and Bock teach the desirability of non-agglomerated nanoparticles, and because Hardinghaus specifically teaches that his particles are advantageously used in coatings. One would have had a reasonable expectation of success in doing so because Bock teaches that his coatings should be transparent, and Hardinghaus teaches that his coated nanoparticles are transparent (column 3). It is noted that the instant specification describes that the crystallization inhibitor and dispersant can be identical (paragraph 0029).

Regarding claims 10, 11 and 13-15, the limitation wherein "the deagglomerated barium sulfate is used in the form of one of....", it appears to be a product-by-process type limitation. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In the instant case, the form of barium sulfate used in preparation of the curable composition is not given patentable weight. See MPEP 2113.

Regarding claim 16, the intended use of barium sulfate as catalyst has not been given patentable weight to distinguish over Turrell because the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claims 22 and 27-30, it is noted that the instant claims recite molar ratio of monomer within the curable composition and various hydrolysis conditions. Bock teaches (meth)acrylate and epoxy polymers and copolymers thereof as suitable curable binder. However, differences in concentration or temperature will generally not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." See *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *In re Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; or *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969).

Regarding claim 36, barium sulfate shields from high energy radiation.

Claims 1, 3-5, 7-32 and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bock *et al.* (US 6,020,419) in view of Hardinghaus *et al.* (WO 01/92157, whereby US 7,001,582 is relied upon as equivalent), in further view of Turrell

Art Unit: 1618

*et al.* ("A USAXS Study of Dispersion of Barium Sulfate Particles in Polymethylmethacrylate Bone Cement," [www.aps.anl.gov/apsar2001/BELLARA1.pdf](http://www.aps.anl.gov/apsar2001/BELLARA1.pdf), 2001) and Albrecht *et al.* (US 6,620,879).

The rejection over Bock in view of Hardinghaus is applied as above. It would have been obvious to substitute citric acid and/or polyether carboxylate as crystallization inhibitor/dispersant when the teachings of Bock and Hardinghaus are taken in view of Turrell and Albrecht.

Turrell teaches that citric acid is known in the art to disperse nanometer sized barium sulfate (page 1).

Albrecht teaches that polyether carboxylates are known in the art to be used in building materials such as concrete, mortars, knifing fillers, adhesives, pigment-containing paints and coating compositions, etc. to exert a targeted influence on the rheological and/or wetting properties of these building materials (column 1, lines 15+). It was shown that sticking and caking resistance was considerably increased and additional advantages were found in the use of polyether carboxylates incorporated into mineral component compositions in cement-containing building material mixtures (column 2, line 60 – column 3, line 12). Mineral component support is suitable barium sulfate, including particle size 0.1 micron (column 4, lines 5-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute citric acid or polyether carboxylate as a dispersant used to disperse micronized barium sulfate shown by Hardinghaus. One would have been motivated to do so because Hardinghaus teaches that dispersing agents are selected to



Art Unit: 1618

it is compatible in regard to the intended use of the particles, such that hydrophilic or hydrophobic dispersants may be selected, and that tailored adjustment to desired technical application properties is possible through coated particles having adjustable surface properties (column 3). Regarding the combination of citric acid and polyether carboxylate as crystallization inhibitor/dispersant, "it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). In the instant case, since citric acid and polyether carboxylate are known in the art to function as dispersants, their combination would have been obvious to one of ordinary skill in the art.

### ***Conclusion***

No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leah Schlientz whose telephone number is (571)272-9928. The examiner can normally be reached on Monday-Tuesday and Thursday-Friday 9 AM-5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Hartley/  
Supervisory Patent Examiner, Art Unit 1618

LHS